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SDWRI Water News

South Dakota Water Resources Institute

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SDWRI WATER NEWS

SOUTH DAKOTA WATER RESOURCES INSTITUTE
SOUTH DAKOTA STATE UNIVERSITY
COLLEGE OF AGRICULTURE AND BIOLOGICAL SCIENCES

OCTOBER 2011

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WRI USGS 104b Request for Pre-proposals

The South Dakota Water Resources Institute (WRI) has an annual competition for research funds provided by Congressional appropriation to the Water Resources Research Institutes through the US Geological Survey. We are pleased to announce the fiscal year 2012 grant competition. Proposals are invited from faculty or affiliates employed at all South Dakota public universities and colleges and are sought on topics relating to water resources science and engineering.

The deadline for pre-proposal submission to SD WRI is **November 15, 2011**. Pre-proposals will be ranked by a review panel and those selected for submission to USGS for funding will be notified no later than **November 30, 2011**. If no Congressional action has been taken regarding appropriation of program funding, this date may be pushed back. The highest ranked projects will be funded based on budgets and total research funds available. Full proposals will be due by **December 22, 2011**. We anticipate a start date for these one-year research projects of **March 1, 2012**.

More information about the pre-proposal format, budget requirements and other grant information is available at <http://www.sdstate.edu/abe/wri/research/index.cfm>. For additional information please contact Trista Koropatnicki at 605-688-4910 or Trista.koropatnicki@sdstate.edu.

Pre-proposal submission deadline:

November 15, 2011

Notification to submit full proposal:

November 30, 2011

Full proposals due:

December 22, 2011

More information at :

www.sdstate.edu/abe/wri/research/index.cfm

The State Water Resources Research Institute Program, authorized by section 104 of the [Water Resources Research Act of 1984](#), as amended, is a Federal-State partnership which:

- Plans, facilitates, and conducts research to aid in the resolution of state and regional water problems,
- Promotes technology transfer and the dissemination and application of research results,
- Provides for the training of scientists and engineers through their participation in research, and
- Provides for competitive grants to be awarded under the Water Resources Research Act.

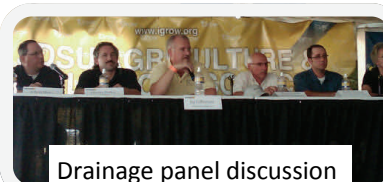


DAKOTAFEST 2011, Mitchell, SD



State Climatologist Dennis Today discussing climate trends

The Water Resources Institute, Department of Agricultural & Biosystems Engineering and the SD Climate Office participated in Dakotafest in August. Our shared booth showed ongoing research projects and the SD Climate Office sold CoCoRaHS rain gauges at a discounted rate.



Drainage panel discussion
In the SDSU tent



Todd Trooien and Nathan Brandenburg discussing water management with farmers

Combine Fire Project - Going Strong



Agricultural Systems Technology students setting up a weather station between Blunt and Onida, SD

Combine fires are a serious safety hazard during the harvest season and can also lead to a considerable amount of lost revenue from equipment damage and burned fields of unharvested crops. Sunflowers are known to be a particularly hazardous crop during harvest with respect to combine fires: South and North Dakota are top producers of sunflowers in the U.S. The South Dakota Oilseed Council (SDOC) approached the Agricultural & Biosystems Engineering Department and the Water Resources Institute to investigate and characterize the causes of these fires during the sunflower harvest.

The ABE and WRI developed a project proposal, which was funded by the SDOC and started on May 15, 2011. The project focuses on the main contributing factors to combine fires, namely, sunflower dust characteristics, combine factors and environmental factors (mainly weather and related issues).

The dust characterization

began in the lab when overwintered sunflower stalks were gathered and then ground in a hammermill to generate the initial dust samples. The dust, which was sieved to four particle sizes, has been subjected to a variety of laboratory procedures to evaluate its ignition points and related characteristics. Additional dust samples will be collected during the harvest, which will be completed for the most part in the next month or so. These results will be compared to corn and soybean dust, using the same laboratory procedures. The combine factors include collecting sunflower dust samples in the engine compartments of farmer machines, collecting additional stalks/heads, capturing video in the combine's engine compartment and recording heat measurements of the exhaust manifold/turbo (direct contact and at 2, 4, and 6 inches from the manifold). Three farmers in the Blunt/Onida area have been collaborating and have been excellent partners in the research data collection.

The final component includes the collection of daily weather data. The State Climatologist loaned the project a portable weather station, which was placed in proximity to the cooperators' fields. Wind speed and direction, temperature, relative humidity and rainfall data are being collected and transmitted to SDSU.

The harvest season began in early October with a bang. High temperatures, low humidity, an early frost, dry crops and high winds produced numerous fires in the sunflowers, as well as in soybeans. In the project study area (Sully/Hughes County) at least one combine fire in sunflowers led to the destruction of several fields, including an adjacent corn field. One of the cooperators spent almost two days harvesting sunflowers, but was forced to quit due to too many small fires on his machine, all of which were extinguished, fortunately. Harvesting has resumed within the last couple of weeks without as many reports of issues.

Early data indicate that sunflower dust ignites at temperature significantly lower than corn dust. Soybean dust will be evaluated by the project's end. Harvest data are still being collected. All of the harvest data have a time stamp and will aid in developing relationships among the variables.

The ABE/WRI project team includes Kevin Dalsted, Daniel Humburg, Zhen-Grong Gu and Joseph Polin (Graduate Student). Adam Wiest, Kyle Stewart, Luke Bunkers and Evan Krause, senior Agricultural Systems Technology students, are helping during the harvest data collection.

FALL CLIMATE SUMMARY

By Dennis Todey, South Dakota State Climatologist

U.S. Drought Monitor

October 18, 2011

Valid 7 a.m. EST

South Dakota

Table 3

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	73.44	26.56	7.43	0.00	0.00	0.00
Last Week (10/11/2011 map)	74.03	25.97	7.43	0.00	0.00	0.00
3 Months Ago (07/19/2011 map)	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year (12/28/2010 map)	99.02	0.98	0.00	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	71.37	28.63	7.36	0.00	0.00	0.00
One Year Ago (10/12/2010 map)	97.18	2.82	0.00	0.00	0.00	0.00

Intensity:

D0 Abnormally Dry	D3 Drought - Extreme
D1 Drought - Moderate	D4 Drought - Exceptional
D2 Drought - Severe	



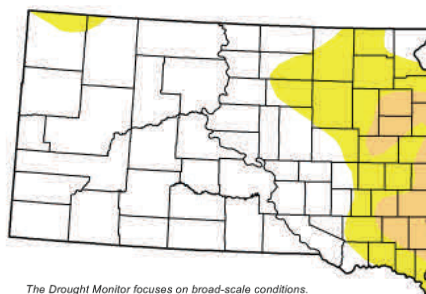
Released Thursday, October 20, 2011
David Miskus, NOAA/NWS/NCEP/CPC

Fall conditions across the state have been excellent for harvesting with warmer and drier conditions. September in South Dakota had many areas seeing one of the top ten driest Septembers on record, leading to increased drought conditions and some fires in crop and grassland. As the state continued to dry out, clean-up began in many communities that experienced flooding this past summer while some lake chains, including Lake Thompson and Bitter Lake, continued to have high lake levels.

On September 15th, much of eastern South Dakota experienced the first major freeze of the fall. The lowest temperature reported was 25°F near Herreid, SD. Some impact of the freeze was likely mitigated by very warm soil temperatures at the time. The end result was that many of the row crops, especially soybeans, ended their growing season.

Another round of freezing temperatures occurred on September 23, adding more area and crops to season-ending temperatures. Recent cold temperatures have likely ended the growing season for any plants that had survived the earlier freezes over most of the state.

Figure 1



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>

As a result of the lack of precipitation in many places since late summer, drought conditions continued to spread across eastern South Dakota (Fig. 1). Most of eastern South Dakota was considered to be D0 (Abnormally dry) or D1 (Moderate Drought) as of mid-October (Fig. 1). The D1 areas have seen below average precipitation extending back 2-3 months, leading to the higher drought category. Less than half-average precipitation had fallen in many areas of eastern SD and northwest SD over the last 60 days (Fig. 2)

Although the state has begun drying out during the past two months, there are a couple areas in the state that have already received record precipitation for the year. Both Murdo and McLaughlin have already seen their wettest year on record with 28.87 and 23.64 inches of precipitation recorded through the end of September. Seven other sites have also experienced one of the top ten wettest years on record (Table 3). With three months left in the year, the total precipitation for this current year may move into the top ten on record for many other sites as well.

Percent of Normal Precipitation (%)
8/20/2011 - 10/18/2011

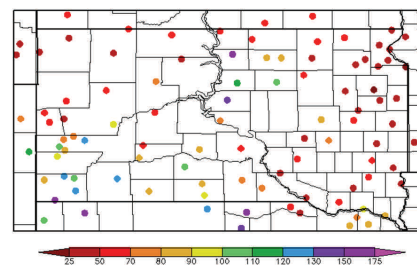


Figure 2

Generated 10/19/2011 at HPRCC using provisional data. Regional Climate Centers



Farmfest 2011

Redwood County, MN



SDSU Water Management Specialist Chris Hay discussing drainage water management at Farmfest 2011



Agricultural & Biosystems Engineering MS Student Nathan Brandenburg and Jeppe Kjaersgaard at the SDSU display at Farmfest

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Water News features water-related topics, including SDWRI activities. Subscriptions are free. Please address requests to:

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